

State Roles, Legal Frameworks and Practical Approaches to Digital
Transformation in Public Administration: A Comparative Review

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**State Roles, Legal Frameworks and Practical
Approaches to Digital Transformation in Public
Administration: A Comparative Review**

Salem El Khairalla Elfirgani¹, Huda Saed Hamad AlAzzoumi²,
Fatma Mohamed Hassan³, Asma H Muftah Alzawi⁴

College of Computer Technology Benghazi - Libya
Salemteacher15@gmail.com¹

0009-0009-8708-5820¹
0009-0005-6495-9872²
0009-0009-0403-1799³
0009-0007-6792-3722⁴

Abstract

Digital transformation has become a central force reshaping the role of the state, the legal frameworks governing public administration, and the delivery of government services, yet existing scholarship tends to treat its conceptual, legal, and practical dimensions separately, with the human dimension receiving little sustained attention. This paper addresses that fragmentation through a qualitative comparative review of fifteen peer-reviewed sources spanning European, Asian, African, and other national contexts. The review synthesizes evidence on digital transformation's conceptual foundations, legal architectures, practical outcomes, and the organizational conditions required to sustain reform. Findings show that conceptual precision particularly between digitization, digitalization, and comprehensive transformation remains inconsistently applied. The review identifies three recurring legal patterns (EU, Uzbekistan, China/South Korea); cautioning against treating them as an exhaustive global typology, given more fragmented arrangements observed in African contexts. Efficiency gains consistently pair with risks, including privacy tensions and

digital-skills gaps, the paper concludes that legal adaptability and workforce readiness matter as much as technology adoption itself.

Keywords: digital transformation, public administration, e-governance, legal framework, state role, comparative review.

أدوار الدولة، الأطر القانونية والنهج العملية للتحويل الرقمي في الإدارة

العامة: مراجعة مقارنة

سالم الصادق خيرالله الفرجاني¹، هدى سعد حمد العزومي²، فاطمة محمد حسن³،

أسماء حسن مفتاح الزاوي⁴

كلية تقنيات الحاسوب بنغازي - ليبيا

Salemteacher15@gmail.com¹

الملخص

أصبح التحوّل الرقمي قوة محورية تُعيد تشكيل دور الدولة، والأطر القانونية التي تحكم الإدارة العامة، وتقديم الخدمات الحكومية، إلا أن الدراسات الحالية تميل إلى معالجة أبعاده المفاهيمية والقانونية والعملية بشكل منفصل، مع إيلاء البُعد الإنساني اهتمامًا ضئيلاً ومستدامًا. تتناول هذه الورقة البحثية هذا التشتت من خلال مراجعة مقارنة نوعية لخمسة عشر مصدرًا مُحكمًا تُغطي سياقات أوروبية وآسيوية وأفريقية وغيرها من السياقات الوطنية. تُركّز المراجعة على الأدلة المتعلقة بالأسس المفاهيمية للتحويل الرقمي، وهياكله القانونية، ونتائجه العملية، والظروف التنظيمية اللازمة لدعم الإصلاح. تُظهر النتائج أن الدقة المفاهيمية، لا سيما بين الرقمنة والتحول الشامل، لا تزال تُطَبَّق بشكل غير متسق. تحدد المراجعة ثلاثة أنماط قانونية متكررة (الاتحاد الأوروبي، أوزبكستان، الصين/كوريا الجنوبية)، مع التحذير من اعتبارها تصنيفًا شاملاً، نظرًا للترتيبات الأكثر تشتتًا التي لوحظت في السياقات الأفريقية. وخلصت الورقة إلى أن مكاسب الكفاءة تقترب باستمرار بالمخاطر، بما في ذلك التوترات المتعلقة بالخصوصية والفجوات في المهارات الرقمية، وأن القدرة على التكيف القانوني وجاهزية القوى العاملة لا تقل أهمية عن تبني التكنولوجيا نفسها.

الكلمات المفتاحية: التحويل الرقمي، الإدارة العامة، الحكومة الإلكترونية، الإطار

القانوني، دور الدولة، مراجعة مقارنة.

1. Introduction

The rapid diffusion of digital technologies is reshaping the role of the state and the architecture of public administration worldwide. What began as the digitization of records and automation of transactions has evolved into a broader transformation of how governments design services, exercise authority, and interact with citizens (Henriette, Feki & Boughzala, 2015). Governments are increasingly expected not only to adopt digital technologies but also to foster innovation, develop inclusive digital infrastructures, and strengthen institutional capabilities, while addressing persistent challenges in governance capacity, legal preparedness, and organizational readiness (Hanna, 2018; Yang, Gu, & Albitar, 2014).

A key distinction in this context is between digitization, digitalization, and digital transformation. Digitization refers to converting analog information into digital formats, while digitalization involves redesigning existing processes through information and communication technologies. Digital transformation represents a deeper organizational, strategic, cultural, and workforce change that extends beyond the automation of individual processes (Mergel, Edelmann, & Haug, 2019; Dobrolyubova, 2021). This distinction is significant because technological adoption alone does not necessarily generate the structural and institutional improvements associated with genuine transformation (Singun, 2025). The legal and institutional dimensions have become increasingly important with the adoption of artificial intelligence, blockchain, big data analytics, and platform-based services. These technologies raise concerns regarding data protection, transparency, algorithmic accountability, security, and administrative responsibility (Tkachenko, Koviakovskvi & Zinchenko, 2025). Comparative experiences from Europe and countries including Estonia, South Korea, China, and Uzbekistan demonstrate that digital transformation interacts with existing administrative and governance models, with its pace and outcomes shaped by legal frameworks, political commitment, and administrative capacity (Alekseeva & Isakova, 2025; Mamatov, 2025; Sharmin & Chowdhury, 2025). Empirical evidence suggests that digital transformation can improve administrative efficiency,

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service delivery, inter-agency coordination, and transparency, particularly through open-data and blockchain applications (Yang et al., 2024; Sharmin & Chowdhury, 2025). However, it also creates new governance challenges, including tensions between digital surveillance and privacy, as demonstrated during the COVID-19 pandemic (Eom & Lee, 2022). Moreover, technological investment alone is insufficient.

Successful transformation depends on workforce readiness, digital competence, training, leadership, resources, and employee acceptance; inadequate competencies may contribute to resistance and uneven implementation (Tzavella, Konstantinopoulou & Lazakidou, 2025; Edelmann Mergek & Lampoltshammer, 2023; Cordella, Gualdi & van de Laar, 2024). Systematic reviews similarly identify weak strategies, resource constraints, and ethical concerns as persistent barriers (Singun, 2025). Despite growing research, commonly used international indicators often emphasize the availability of digital services rather than their actual use, quality, or institutional impact (Dobrolyubova, 2021). The literature therefore remains fragmented across conceptual, legal, operational, and workforce dimensions, while comparative evidence from underrepresented regions, particularly Africa, remains limited.

This paper addresses this gap through a comparative review of the state's evolving role, legal frameworks, practical approaches, and workforce conditions underlying digital transformation in public administration. By synthesizing evidence from European, Asian, African, and other governance contexts, the review examines how these dimensions interact and identifies conditions for strengthening the legal, institutional, and human-capital foundations of public administration in the digital age.

2. Literature Review

2.1 The Evolving Role of the State and Conceptual Foundations

Recent scholarship reframes the state's function in the digital economy as entrepreneurial rather than merely regulatory, actively nurturing innovation ecosystems and digital infrastructure rather than only correcting market failures (Hanna, 2018). This repositioning exposes a deeper conceptual problem: the absence of

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a stable, shared definition of “digital transformation”. Several studies converge on a three-stage typology digitization (converting analog information into digital format), digitalization (using digital tools to improve discrete existing processes) and digital transformation proper (a comprehensive, organization-wide change reshaping strategy, culture, structure, and institutional logic, rather than the automation of isolated tasks) as summarized in Fig. 1 (Mergel, Edelman, & Haug, 2019; Dobrolyubova, 2021). Several authors term this third stage “comprehensive” or “holistic” digital transformation specifically to distinguish it from partial digitalization efforts that improve individual processes without altering the organization as a whole (Edelman, Mergel, & Lampoltshammer, 2023).



Fig. 1. Conceptual Stages of Digital Transformation

Based on expert interviews, Mergel et al. (2019) find that practitioners rarely distinguish these stages clear, even though their outcomes differ substantially a pattern echoed in Edelman et al.’s (2023) Austrian case study, which shows that civil servants and external stakeholders require markedly different competences depending on whether the goal is discrete process digitalization or organization-wide transformation. This ambiguity has tangible consequences as following:

- 1- Dobrolyubova (2021) shows that international indices such as the UN E-Government Development Index largely capture e-service availability rather than actual use or institutional impact.
- 2- The conceptual dimension identified by Singun (2025).

3- Strategic vision is a core barrier dimension in digital transformation more broadly.

This work suggests that conceptual precision is a prerequisite not a peripheral concern for meaningful digital reform, framing the comparative legal, practical, and human-organizational dimensions discussed next.

2.2 Comparative Legal Frameworks

A second strand of literature examines how legal systems have adapted to digital transformation, though the pattern identified below should be read as characteristic of the reviewed sample rather than as an exhaustive global typology. Tkachenko, Kotviakovskiy, and Zinchenko (2025) show that digital transformation in Europe doesn't replace classical administrative traditions but hybridizes them with New Public Management and Good Governance models, with the GDPR functioning as a cross cutting legal instrument balancing innovation and citizen's rights. Alekseeva and Isakova (2025) corroborate this from a Russian and international comparative perspective, arguing that legal frameworks require continuous adaptation through instruments such as regulatory "sandboxes" and civil servant training rather than one off reform. Outside Europe, trajectories diverge considerably: Mamatov (2025) documents Uzbekistan's centralization, decree driven approach under the "Digital Uzbekistan 2030" program, while China's state directed strategy and South Korea's advanced e-governance model illustrate yet another distribution of legal authority between central and local structures (Yang, Gu, & Albitar, 2024; Sharmin & Chowdhury, 2025). A further, less formalized pattern is evident in the African cases synthesized in Egba, Ayanwale, Ukeje, Durokifa, Chioke, Obi, and Ereke's (2026) PRISMA-guided systematic review of forty-two studies, which finds that digital governance across much of Sub-Saharan and North Africa proceeds through fragmented, centralized, and often donor-dependent arrangements rather than through the coherent supranational or state-led strategies observed in the European and East Asian cases underscoring that legal and institutional architecture reflects each region's administrative history and resource base rather than a single global trajectory. Collectively, these cases suggest that legal architecture



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reflects underlying constitutional and administrative traditions rather than a universal template an insight developed further, and treated with appropriate caution, in the Findings.

2.3 Practical Outcomes, Efficiency Gains, and Emerging Challenges

A third body of literature measures digital transformation's practical effects. Yang, Gu, and Albitar (2024) find that digital transformation improves Chinese governmental efficiency, with coordinated cross department efforts amplifying gains beyond isolated initiatives; similarly, Sharmin and Chowdhury (2025) show that e-governance in Estonia, India and South Korea reduced costs and corruption through automation, blockchain procurement and data. Yet this optimistic picture is complicated by accompanying risks: Eom and Lee (2022) show that COVID-19 accelerated digital government transformation while intensifying privacy surveillance tensions and Singun (2025) identifies eighty-barrier sub dimensions spanning leadership, culture and ethics limiting implementation even in digitally mature sectors, echoing obstacles reported in general government contexts (Dobrolyubova, 2021), and at a larger scale, the institutional capacity deficits and fragmented coordination documented across forty-two African studies Egba et al. (2026).

The human and organizational dimension of this picture has received growing, though still uneven, empirical attention. At the individual level, Tzavella, Konstantinopoulou, and Lazakidou (2025) find that Greek local-government employee's job satisfaction is closely tied to digital-skills training, suggesting that the human dimension often subordinated to technology-centered accounts is a decisive, under-measured determinate of reform success. Cordella, Gualdi and van de Laar (2024) extend this argument conceptually, proposing that digital skills within the public sector should be understood not merely as end user's ability to operate specific tools but as the capacity to understand the broader socio-technical arrangements that ICT-mediated policies create: using the case of the United Kingdom's Government Digital Service, they argue that this deeper form of digital literacy among policy-framing civil servants, not technology procurement alone, is the "missing link" between digitalization and its intended

developmental outcomes. Read together, these three studies indicate that resistance to change, uneven job-role evolution, and organizational adaptation are not peripheral implementation frictions but structural features of digital transformation that require dedicated competence frameworks and leadership development, a point developed further in the Findings and Discussion.

2.4 Synthesis and Identification of the Research Gap

Read together, these four strands are conceptually rich but analytically fragmented: studies on conceptual foundations (Hanna, 2018; Mergel et al., 2019; Dobrolyubova, 2021; Edelman et al., 2023) rarely engage the legal instruments needed to operationalize them, while comparative legal studies (Tkachenko et al., 2025; Alekseeva & Isakova, 2025; Mamatov, 2025; Egba et al., 2026) seldom draw on empirical evidence regarding outcomes and workforce impact (Yang et al., 2024; Sharmin & Chowdhury, 2025; Tzavella et al., 2025; Cordella et al., 2024) and existing comparative work tends to confine itself to a single dimension rather than integrating all four. It is worth distinguishing here between what these studies report directly and what this review infers by juxtaposing them: no single source in the sample claims, for instance, that legal architecture and workforce competence are causally linked, but reading the legal and human-organizational literatures together suggests as an interpretation offered by this review rather than a finding attributable to any individual study that centralized, executive-driven legal pathways may outpace the workforce competences needed to implement them responsible,

Table 1. Summary of Reviewed Literature

Author(s), Year	Country/ Context	Method	Dimension	Key Findings
Hanna (2018)	Cross- national (USA focus)	Conceptual /historical analysis	Conceptual	The state plays an entrepreneurial, not merely regulatory; most core digital technologies originated from public investment.

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Author(s), Year	Country/ Context	Method	Dimension	Key Findings
Henriette, Feki & Boughzala (2015)	Cross- sectoral (general)	Systematic literature review	Conceptual	Digital transformation extends beyond technology to impact business models, operational processes and user experience.
Mergel, Edelmann, & Haug (2019)	Germany, Austria, EU (expert interview s)	Qualitative, grounded theory (40 expert interviews)	Conceptual	Practitioners rarely distinguish digitization, digitalization and digital transformation; mainly external pressures drive transformation.
Dobrolyub ova (2021)	Cross- national (index- based)	Literature review + critical analysis of measureme nt indices	Conceptual	Existing indices (e.g., UN E-Government Index) measure e-service availability, not actual use, quality, or G2G/G2E outcomes.
Tkachenko, Kotviakovs kyi, & Zinchenko (2025)	European Union / member states	Comparativ e legal & administrati ve analysis	Legal	Digital transformation hybridizes rather than replaces classical, NPM and Good Governance models; GDPR is a key cross cutting legal instrument.
Alekseeva & Isakova (2025)	Russia (with internatio nal comparis on)	Theoretical - legal, comparativ e, content analysis	Legal	Legal frameworks must evolve continuously; proposes regulatory "sandboxes", civil servant training and digital-divide reduction tools.
Mamatov(2 025)	Uzbekista n	Policy/case analysis	Legal	Centralized, decree-driven digital reform ("Digital Uzbekistan-2030"); highlights institutional, technical and legal prerequisites for reform.

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Author(s), Year	Country/ Context	Method	Dimension	Key Findings
Egba, Ayanwale, Ukeje, Durokifa, Chioke, Obi, & Ereke (2026)	Sub-Saharan & North Africa (42 studies)	Legal & Practical	PRISMA-guided systematic literature review	Digital governance across Africa is constrained by fragmented/centralized governance, institutional capacity deficits, and persistent digital inequality; legal-institutional patterns diverge from EU/East Asian models.
Yang, Gu, & Albitar (2024)	China (2012–2022)	Production network model, text analysis, empirical/q uantitative	Practical	Digital transformation improves governmental efficiency; coordinated cross-department efforts amplify gains beyond isolated initiatives.
Sharmin & Chowdhury (2025)	Estonia, India, South Korea	Mixed-methods (qualitative content analysis + survey; comparative case study)	Practical	E-governance improves efficiency and transparency; blockchain/open data reduce corruption; digital divide and cybersecurity remain key risks.
Eom & Lee (2022)	Global (special issue editorial)	Systematic literature review (41 articles, 2020-2022)	Practical	COVID-19 accelerated digital government transformation but intensified privacy-surveillance dilemmas and institutional paradoxes.
Singun (2025)	Global (higher education institutions)	Systematic literature review, PRISMA (20 studies), NVivo/Zotero coding	Practical	Identifies 9 dimensions and 80 sub-dimensions of barriers to digital transformation (e.g., vision, leadership, culture and ethics).

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Author(s), Year	Country/ Context	Method	Dimension	Key Findings
Tzavella, Konstantin opoulou & Lazakidou (2025)	Greece (Pelopon nese region)	Quantitativ e survey (structured questionnai re)	Human- Organizatio nal	Job satisfaction among government employees is closely linked to digital- skills training and administrative support during modernization
Cordella, Gualdi, & van de Laar (2024)	United Kingdom (Govern ment Digital Service case)	Human- Organizatio nal	Conceptual analysis + single case study	Reconceptualizes digital skills as the capacity to understand socio-technical policy arrangements, not just tool use; civil-servant digital literacy is a missing link to achieving the SDGs.
Edelmann, Mergel, & Lampoltsha mmer (2023)	Austria (41 expert interview s)	Human- Organizatio nal	Qualitative case study	Stakeholder groups require distinct competence profiles; leadership competence (digital mindset, collaboration, customer orientation) is the most consistently required capability.

3. Methodology

3.1 Research Design

This paper adopts a qualitative comparative review design, aimed at synthesizing conceptual, legal, empirical and human-organizational literature on digital transformation in public administration across multiple national and institutional contexts. Given that, the paper's objective is integrative rather than purely descriptive linking conceptual definitions, legal frameworks, practical outcomes and workforce conditions into a single analytical account a narrative comparative review was chosen over a purely systematic (e.g., PRISMA-based) review, since the latter is better suited to homogeneous, outcome focused studies rather than the cross-disciplinary synthesis of legal, administrative; and organizational literature undertaken her. Two systematic review (Singun, 2025; Egba et al., 2026) and one further systematic review of editorial commentary (Eom & Lee, 2022) are nonetheless included as secondary evidence within the broader comparative framework, precisely because their systematic methodology allows their findings to represents a much larger underlying literature on barriers

and governance fragmentation than this review could otherwise cover directly.

3.2 Search Strategy and Source Selection

Sources were identified through a multi-stage, purposive search strategy rather than an exhaustive database-driven protocol, consistent with the review's aim of achieving analytical saturation across four conceptual dimensions rather than volumetric completeness. Searches were conducted primarily in Google Scholar, Scopus, and publisher platforms (Elsevier ScienceDirect, SAGE, MDPI, IOS Press), using combinations of the terms "digital transformation", "digitalization", "digitization," "public administration," "e-governance," "legal framework," "digital government," "digital competences," "resistance to change," and "state role," combined with Boolean operators (e.g., "digital transformation" AND "public administration" AND "legal framework"), and restricted primarily to publications from 2015 to 2026 to capture both foundational conceptual work and recent empirical, legal, and workforce-related developments. The reference lists of retrieved sources were also hand-searched (a snowballing step), which is how two of the sources addressing digital competences and the systematic review of the African context were identified.

Justification for the sample size: fifteen sources were judged sufficient not because the underlying literature on digital transformation is limited it is, in fact, extensive but because the review's purpose is to trace the interaction among four analytical dimensions across contrasting governance traditions rather than to exhaustively map any single dimension. Saturation was assessed qualitatively: additional candidate sources identified during screening were found to reinforce, rather than qualify or contradict, the patterns already identified within a given dimension (for example, additional e-government efficiency studies reproduced findings already captured by Yang et al., 2024, and Sharmin & Chowdhury, 2025), which is the criterion used to stop adding sources within that dimension. This purposive logic mirrors the design of comparative-institutional reviews in political science and public administration, which typically prioritize contextual and

analytical diversity over sample size, and it is explicitly distinguished here from the volumetric completeness sought by the systematic reviews of Singun (2025) and Egba et al.(2026), Both of which are included as secondary evidence precisely because their systematic methodology allows their findings to stand in for a much larger underlying literature. This purposive rather than exhaustive sampling strategy is consistent with the comparative review design, prioritizing analytical diversity and contextual variation over volume.

3.3 Comparative analytical Framework

The reviewed literature was analyzed using a thematic comparative approach, structured around the four dimensions introduced in the Literature Review:

- i- Conceptual foundations of the state's role and definitions of digital transformation.
- ii- Comparative legal and regulatory frameworks.
- iii- Practical implementation outcomes and challenges.
- iv- Human and organizational conditions, including digital competences, training, and resistance to change.

For each dimension, source were compared along consistent criteria namely, the institutional/legal tradition represented (e.g., continental European, centralized/decreed based, donor-dependent), the method employed in the original study (theoretical, empirical or mixed), and the reported outcomes or gaps. This comparative matrix (summarized in Table 1) enabled cross context synthesis while preserving the contextual specificity of each jurisdiction rather than treating digital transformation as a uniform, context independent process.

3.4 Limitation

Several limitations should be acknowledged. First, the review relies on a purposive, non-exhaustive sample of fifteen sources, screened iteratively rather than through a single logged database export, while diverse, this sample can't claim full representativeness of the global literature on digital transformation in public administration, and the absence of a formal PRISMA flow count (explained in Section 3.2) should be read as a deliberate feature of a purposive comparative design rather than an oversight. Second, the sources vary

considerably in methodological rigor ranging from systematic literature reviews with define protocols (e.g., Singun, 2025; Egba et al., 2026) to editorial commentaries and policy-oriented analyses (e.g., Mamatov, 2025) which limits direct methodological comparability across studies. Third, despite the addition of a systematic review covering forty-two African studies, Latin American remains entirely absent from the evidence base, and conclusions regarding legal adaptation should not be generalized beyond the regions actually represented in the sample. Finally, where this review advances interpretive claims that go beyond what any single reviewed study reports for instance, connecting the legal and human-organizational literatures these are explicitly flagged in the text as this review's own interpretation rather than as directly reported empirical findings. These limitations are addressed in the Discussion section, which situates the paper's findings within these methodological boundaries.

4. Results/Findings

4.1 Divergence in Conceptual Clarity Across Contexts

The comparative analysis reveals that conceptual precision regarding digital transformation varies systematically with institutional maturity rather than geography alone. Source grounded in established e-government research traditions (mergel et al., 2019; Dobrolyubova, 2021; Edelman et al., 2023) explicitly differentiate digitization, digitalization and comprehensive digital transformation and treat this distinction as analytically consequential. By contrast, several practice and policy-oriented sources (Mamatov, 2025; Sharmin & Chowdhury, 2025) use these terms interchangeable, treating "digital transformation" as a broad umbrella covering any technology enabled reform. This pattern suggests that conceptual rigor is more prevalent in academic empirical literature than in policy oriented or national strategy documents a gap with direct practical consequences, since policies built on an undifferentiated concept of "digital transformation" risk conflating simple digitization with the deeper structural change the literature associates with genuine transformation (Singun, 2025).

4.2 Legal Architecture Reflects Administrative Tradition: Recurring Patterns, Not a Universal Template

Across the fifteen reviewed sources, no single legal model of digital transformation emerges as dominant. Instead, three recurring pathways are identified among the higher-income and East Asian cases Fig. 2. First, the supranational hybrid model in the European Union involves incremental legal adaptation, layering digital instruments such as the GDPR and Digital Europe Programme onto established administrative traditions, resulting in hybridization rather than replacement of classical, New Public Management, and Good Governance paradigms (Tkachenko et al., 2025; Alekseeva & Isakova, 2025). Second, the centralized, decree-driven model in Uzbekistan concentrates legal authority in executive instruments, particularly presidential decrees, enabling relatively rapid top-down implementation (Mamatov, 2025). Third, the state-directed strategic model in China and South Korea frames digital transformation as national priority coordinated by central institutions, emphasizing interdepartmental coordination and efficiency (Yang et al., 2024; Sharmin & Chowdhury, 2025).

A more fragmented configuration appears in lower-income and donor-dependent African contexts, where regulatory authority is often dispersed across ministries and donor programs, producing what Egba et al., (2026) describe as “e-chaos”. These patterns suggest that digital legal frameworks are shaped primarily by existing administrative and constitutional traditions rather than technology itself, challenging assumptions of global convergence toward a single digital governance model.

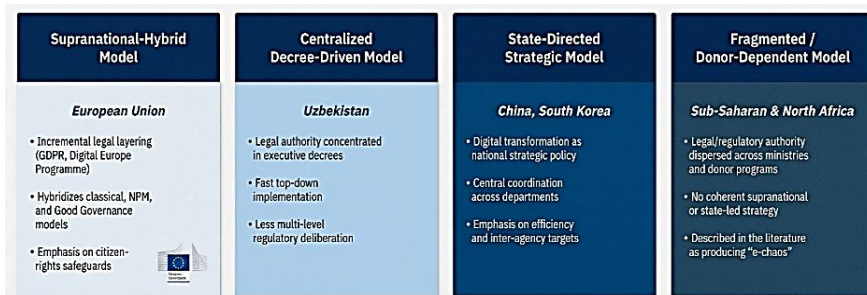


Fig. 2. Comparative Legal Pathways to Digital Transformation

4.3 Human and Organizational Conditions: From a Single Data Point to a Recognizable Pattern

Of the fifteen reviewed sources, three directly examine the workforce and organizational dimension of digital transformation, revealing a recognizable, although still under-measured, pattern. Tzavella et al. (2025) show that job satisfaction among Greek local-government employees is closely associated with digital-skills training. Cordella et al. (2024), drawing on the UK Government Digital Service, argue that digital skills among policy-forming civil servants, rather than end-users along, are essential for translating digitalization into intended outcomes. Edelman et al. (2023), based on forty-one Austrian expert interviews, identify leadership competence as a more consistently emphasized requirement for organizational adaptation than narrow technical skills. Taken together, these studies suggest that digital competence, leadership, resistance to change, and evolving civil-service roles form a structural layer mediating between technological or legal reform and implementation. This interpretation derives from their combined evidence rather than any single study.

However, empirical evidence remains concentrated in European contexts Greece, Austria, and the United Kingdom and is largely absent from the centralized and state-directed cases of Uzbekistan and China and from the African cases reviewed by Egba et al. (2026). This geographical and organizational asymmetry represents a significant gap and reinforces the need to examine workforce capabilities alongside legal and technological dimensions of digital transformation.

5. Discussion

5.1 Interpreting the Conceptual Divergence: Toward Definitional Alignment

The gap between academic and policy of “Digital transformation” identified in Section 4.1 isn’t merely a terminological inconvenience; it has structural consequences for governance. When national strategies (Mamatov, 2025) or international benchmarking frameworks (Dobroyubova, 2021) don’t distinguish digitization from genuine transformation,

resource allocation and success metrics risk being calibrated to the wrong target rewarding the appearance of digital modernization (e.g., number of online portals launched) rather than the deeper organizational change associated with improved governance outcomes, this suggests that legal and policy instruments requiring transformation would benefit from embedding the digitization-digitalization-transformation comprehensive-transformation typology (Mergel et al., 2019; Edelmann et al., 2023) directly into official evaluation criteria, rather than leaving it as an academic distinction disconnected from practice.

5.2 Legal Divergence as a Design Feature, Not a Failure and Not a Complete Typology

The legal patterns identified in Section 4.2 challenge the assumption, particularly in EU-centered scholarship (Tkachenko et al., 2025), that digital transformation necessarily drives convergence toward a common regulatory model centered on rights-protective instruments such as the GDPR. The Uzbek and Chinese cases demonstrate that centralized, executive-driven pathways can support rapid implementation, while the fragmented, donor-dependent arrangements documented across Africa by Egba et al. (2026) illustrate a model in which legal authority is dispersed and weakly coordinated. These differences should not automatically be interpreted as legal deficiencies; administrative traditions and resource conditions may produce distinct legal configurations. Comparative analysis should therefore assess frameworks against their institutional objectives and constraints rather than a single normative benchmark. However, privacy-surveillance tensions documented by Eom and Lee (2022) indicate that even right-protective systems face difficulties keeping pace with rapid technological deployment, particularly during crises. Thus, no existing model has fully resolved the tension between implementation speed and regulatory safeguards.

5.3 Addressing the Human-Dimension Gap

The three workforce-focused sources reviewed begin to address, but do not fully close, the empirical gap identified in earlier research. Edelmann et al. (2023) and Cordella et al. (2024) emphasize

leadership competence and socio-technical literacy over narrow technical training, while Tzavella et al. (2025) demonstrate a quantitative link between training adequacy and job satisfaction. Combined with Singun's (2025) identification of leadership, culture, and competence barriers, these findings support this review's interpretation that civil-servant readiness may mediate the relationship between legal or technological reform and implementation success. However, this relationship remains underexplored beyond European contexts. Uzbekistan, China, and African cases report systematic capacity deficits but limited evidence on individual competence or resistance to change (Egba et al., 2026). Future research should extend workforce-focused surveys and competency-based interviews to these contexts.

5.4 Policy and Legal Implications

Four implications emerge for legal and institutional design: (1) standardize definitions distinguishing digitization from transformation to improve evaluation; (2) adopt context-sensitive legal frameworks rather than a universal template; (3) include workforce and risk indicators alongside efficiency metrics to address the human-dimension gap; and (4) strengthen leadership and socio-technical competence through structured frameworks, such as Edelmann et al.'s (2023) Austrian model, beyond generic digital-skills training.

5.5 Limitations Revisited

Consistent with the methodological limitations noted in Section 3.4, these findings should be interpreted as patterns emerging from a purposive, moderately sized comparative sampling of fifteen sources rather than statistically generalizable conclusion. The addition of a systematic review covering forty-two African studies substantially improves, but does not resolve, the regional balance of the evidence base: Latin America remains entirely absent, and the four legal patterns identified here should be read as characteristic of the reviewed sample rather than as an exhaustive account of global practice.

6. Conclusion

This paper addresses the tendency of prior scholarship to examine conceptual, legal, practical, and human dimensions of digital transformation in public administration separately. Reviewing fifteen sources across European, Asian, African, and other contexts, four findings emerged: conceptual distinctions between digitization, digitalization, and comprehensive transformation remain inconsistently applied; legal architecture reflects administrative and resource conditions rather than a universal model, with recurring supranational-hybrid, centralized-decree, state-directed, and fragmented/donor-dependent patterns; efficiency gains are accompanied by privacy concerns and implementation barriers; and digital competence and leadership, rather than technology alone, emerge as under-measured but critical conditions for successful transformation. The paper contributes by examining how these dimensions interact and identifying gaps between legal, practical, and human-organizational research.

These findings derive from a targeted, analytically diverse sample rather than an exhaustive or statistically representative review, and the identified legal patterns should therefore be considered illustrative. Latin America is also largely absent from the evidence base. Future research should extend comparative analysis to Latin America, prioritize workforce-focused research in centralized and state-directed system, and examine whether the efficiency-risk trade-off changes as legal, institutional, and workforce capacities develop together. Overall, this review provides an integrated account of the state's evolving role, legal diversity, implementation realities, and human-capital foundations of digital transformation in public administration.

References

- Alekseeva, M. V., & Isakova, Yu. I. (2025). The specifics of public administration development in the context of modern digital transformation. *North Caucasus Legal Vestnik*, (2), 50–58.
- Cordella, A., Gualdi, F., & van de Laar, M. (2024). Digital skills within the public sector: A missing link to achieve the

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Transformation in Public Administration: A Comparative Review

<http://www.doi.org/10.62341/istj-vol39-1-si54>

- Sustainable Development Goals (SDGs). Information Polity, 29(1), 13–33. <https://doi.org/10.3233/IP-230008>
- Dobrolyubova, E. (2021). Measuring outcomes of digital transformation in public administration: Literature review and possible steps forward. The NISPAce Journal of Public Administration and Policy, 14(1), 61–83. <https://doi.org/10.2478/nispa-2021-0003>
- Edelmann, N., Mergel, I., & Lampoltshammer, T. (2023). Competences that foster digital transformation of public administrations: An Austrian case study. Administrative Sciences, 13(2), 44. <https://doi.org/10.3390/admsci13020044>
- Egba, V. N., Ayanwale, M. A., Ukeje, I. O., Durokifa, A., Chioke, S. C., Obi, Y. M. V., & Ereke, K. I. (2026). Digital governance as institutional innovation for sustainable public-sector transformation in Africa: A PRISMA-guided systematic literature review and framework for inclusive and decentralized governance. Sustainability, 18(17), Article 8929. <https://doi.org/10.3390/su18178929>
- Eom, S.-J., & Lee, J. (2022). Digital government transformation in turbulent times: Responses, challenges, and future direction. Government Information Quarterly, 39(2), 101690. <https://doi.org/10.1016/j.giq.2022.101690>
- Hanna, N. (2018). A role for the state in the digital age. Journal of Innovation and Entrepreneurship, 7(5). <https://doi.org/10.1186/s13731-018-0086-3>
- Henriette, E., Feki, M., & Boughzala, I. (2015). The shape of digital transformation: A systematic literature review. In MCIS 2015 Proceedings (Paper 10). Association for Information Systems.
- Mamatov, R. (2025). The role of digital technologies in increasing the efficiency of public administration. Modern American Journal of Business, Economics, and Entrepreneurship, 1(3), 352–353.
- Mergel, I., Edelmann, N., & Haug, N. (2019). Defining digital transformation: Results from expert interviews. Government Information Quarterly, 36(4), 101385. <https://doi.org/10.1016/j.giq.2019.06.002>

State Roles, Legal Frameworks and Practical Approaches to Digital
Transformation in Public Administration: A Comparative Review

<http://www.doi.org/10.62341/istj-vol39-1-si54>

- Sharmin, S., & Chowdhury, R. H. (2025). Digital transformation in governance: The impact of e-governance on public administration and transparency. *Journal of Computer Science and Technology Studies*, 7(1), 362–379. <https://doi.org/10.32996/jcsts.2025.7.1.27>
- Singun, A., Jr. (2025). Unveiling the barriers to digital transformation in higher education institutions: A systematic literature review. *Discover Education*, 4(37). <https://doi.org/10.1007/s44217-025-00430-9>
- Tkachenko, V., Kotviakovskiy, Y., & Zinchenko, S. (2025). Contemporary European concepts of public administration in the context of digital transformation and their legal framework. *Public Administration and Law Review*, 1(21), 99–109. <https://doi.org/10.36690/2674-5216-2025-1-99-109>
- Tzavella, V., Konstantinopoulou, A., & Lazakidou, A. (2025). Measuring job satisfaction of government employees and the impact of digital transformation in the public sector. *Acta Universitatis Bohemiae Meridionalis*, 28(1). <https://doi.org/10.32725/acta.2025.001>
- Yang, C., Gu, M., & Albitar, K. (2024). Government in the digital age: Exploring the impact of digital transformation on governmental efficiency. *Technological Forecasting & Social Change*, 208, 123722. <https://doi.org/10.1016/j.techfore.2024.123722>